

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A spread code allocation method in a CDMA cellular, comprising the steps of:

having a first code set including a plurality of first codes and a second code set including one or a plurality of second codes,

allocating the second code to said first code set and multiplying said plurality of first codes by said second codes allocated to generate a plurality of combined codes,

assigning a priority to each of said combined codes,

allocating said combined code to said transmission signal based on said priority for each transmission signal to be transmitted from a base station to a mobile station, and

spreading said transmission signal by the assigned combined code to transmit said transmission signal to said mobile station,

wherein determining a priority of said combined code for each transmission signal is based on a channel quality value measured by said mobile station.

2. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of,

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed.

3. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the steps of:

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed, and

setting a priority to said second code according to said channel quality value and setting a priority of said combined code to be higher as said second code attains a higher priority.

4. (Previously Presented) The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the steps of:

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed,

setting a priority to said second code according to said channel quality value and setting a priority of said combined code to be higher as said second code attains a higher priority, and

providing the axis of a channel quality value representing said channel quality value and dividing the axis of a channel quality value by a plurality of threshold values to set a channel quality value within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said second code.

5. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the steps of:

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed, and

setting a priority to said first code and setting a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority.

6. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the steps of:

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed,

setting a priority to said first code and setting a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority, and

providing an axis of a channel quality value representing said channel quality value and dividing the axis of a channel quality value by a plurality of threshold values to set a channel quality value within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

7. (Previously Presented) The spread code allocation method in a CDMA cellular comprising the steps of:

having a first code set including a plurality of first codes and a second code set including one or a plurality of second codes,

allocating the second code to said first code set and multiplying said plurality of first codes by said second codes allocated to generate a plurality of combined codes,

assigning a priority to each of said combined codes,

allocating said combined code to said transmission signal based on said priority for each transmission signal to be transmitted from a base station to a mobile station, and

spreading said transmission signal by the assigned combined code to transmit said transmission signal to said mobile station,

wherein determining a priority of said combined code for each transmission signal based on a transmission quality required amount required by said mobile station receiving each said transmission signal.

8. (Previously Presented) The spread code allocation method in a CDMA cellular as set forth in claim 7, further comprising the steps of:

setting a priority to said second code according to said transmission quality required amount and setting a priority of said combined code to be higher as said second code attains a higher priority.

9. (Previously Presented) The spread code allocation method in a CDMA cellular as set forth in claim 7, further comprising the steps of:

setting a priority to said second code according to said transmission quality required amount and setting a priority of said combined code to be higher as said second code attains a higher priority, and

providing an axis of a transmission quality required amount representing said transmission quality required amount and dividing the axis of a transmission quality required amount by a plurality of threshold values to set a transmission quality required amount within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said second code.

10. (Previously Presented) The spread code allocation method in a CDMA cellular as set forth in claim 7, further comprising the steps of:

setting a priority to said first code according to said transmission quality required amount and setting a priority of each combined code in a group of said combined codes including the same second code to be higher as said first code attains a higher priority.

11. (Previously Presented) The spread code allocation method in a CDMA cellular as set forth in claim 7, further comprising the steps of:

setting a priority to said first code according to said transmission quality required amount and setting a priority of each combined code in a group of said combined codes including the same second code to be higher as said first code attains a higher priority, and

providing an axis of a transmission quality required amount representing said transmission quality required amount and dividing the axis of a transmission quality required amount by a plurality of threshold values to set a transmission quality required amount within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

12. (Previously Presented) The spread code allocation method in a CDMA cellular as set forth in claim 7, wherein

a transmission error rate is taken as said transmission quality required amount.

13. (Previously Presented) The spread code allocation method in a CDMA cellular as set forth in claim 7, wherein

a transmission rate is taken as said transmission quality required amount.

14. (Previously Presented) The spread code allocation method in a CDMA cellular as set forth in claim 7, wherein

said transmission quality required amount is given by a function of a transmission rate and a transmission error rate.

15. (Previously Presented) The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein

said mobile station measures a channel quality value and informs said base station of said channel quality value, and

said base station checks the number of times each second code is used by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code.

16. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein

said mobile station measures a channel quality value and informs said base station of said channel quality value,

said base station checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code, and which further comprises the steps of:

when said channel quality value is not less than a quality threshold value, setting a higher priority of a combined code that includes a second code whose said number of uses of each second code by said combined code is smaller, and

when said channel quality value is less than said quality threshold value, setting a priority of a combined code to be higher that includes a second code whose said number of uses of each second code by said combined code is larger.

17. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein

said mobile station measures a channel quality value and informs said base station of said channel quality value,

said base station checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code, and which further comprises the step of:

setting a priority to said first code and setting a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority.

18. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein

said transmission signal includes a common control signal.

19. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein

said transmission signal includes a common control signal, and
to said common control signal, a combined code having the highest priority is allocated.

20. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of,

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed, wherein

an interference signal power is taken as said channel quality value.

21. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of,

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station,

determining a priority of said combined code based on said channel quality value informed, wherein

a reception power of said common control signal is taken as said channel quality value.

22. (Original) The spread code allocation method in a CDMA cellular as set forth in claim1, further comprising the step of,

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed, wherein

a power ratio of a desired signal to an interference signal is taken as said channel quality value.

23. (Previously Presented) The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of:

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed, wherein

a power ratio of a desired signal to an interference signal is taken as said channel quality value, and further comprising the step of:

checking a reception power of a common control signal sent out from a base station being connected to at least one of said mobile stations and a reception power of said common control signal sent out from a base station not being connected to any of said mobile stations to calculate a power ratio of a desired signal to an interference signal from a ratio of a reception power corresponding to said base station being connected to a reception power corresponding to said base station not being connected.

24. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein
as said first code set, a orthogonal code is used.

25. (Original) The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein
as said second code set, a gold code or a part of the gold code is used.

26. (Previously Presented) A base station in a CDMA cellular, comprising:
a first code set including a plurality of first codes and a second code set including one or a plurality of second codes,
means for allocating said second code to said first code set and multiplying said plurality of first codes by said second code allocated to generate a plurality of combined codes,
means for assigning a priority to said combined code for each transmission signal to be transmitted from a base station to a mobile station,
means for allocating said combined code to said transmission signal based on said priority, and
means for diffusing said transmission signal by the allocated combined code to transmit said transmission signal diffused to said mobile station,
wherein said base station determines a priority of said combined code for each transmission signal based on a channel quality value measured by said mobile station.

27. (Original) The base station in a CDMA cellular as set forth in claim 26, wherein
said base station is informed of channel quality values measured at a plurality of said mobile stations to determine a priority of said combined code based on said channel quality values informed.

28. (Original) The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations to determine a priority of said combined code based on said channel quality values informed, and

sets a priority to said second code according to said channel quality value and sets a priority of said combined code to be higher as said second code attains a higher priority.

29. (Original) The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations to determine a priority of said combined code based on said channel quality values informed,

sets a priority to said second code according to said channel quality values and sets a priority of said combined code to be higher as said second code attains a higher priority, and provides an axis of a channel quality value representing said channel quality value and divides the axis of a channel quality value by a plurality of threshold values to set a channel quality value within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said second code.

30. (Original) The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations and determines a priority of said combined code based on said channel quality values informed, and

sets a priority to said first code according to said channel quality value and sets a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority.

31. (Original) The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations and determines a priority of said combined code based on said channel quality values informed,

sets a priority to said first code according to said channel quality value and sets a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority, and

provides an axis of a channel quality value representing said channel quality value and divides the axis of a channel quality value by a plurality of threshold values to set a channel quality value within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

32. (Previously Presented) The base station in a CDMA cellular, comprising:

a first code set including a plurality of first codes and a second code set including one or a plurality of second codes,

means for allocating said second code to said first code set and multiplying said plurality of first codes by said second code allocated to generate a plurality of combined codes,

means for assigning a priority to said combined code for each transmission signal to be transmitted from a base station to a mobile station,

means for allocating said combined code to said transmission signal based on said priority, and

means for diffusing said transmission signal by the allocated combined code to transmit said transmission signal diffused to said mobile station,

wherein said base station determines a priority of said combined code for each transmission signal based on a transmission quality required amount required by a mobile station receiving each said transmission signal.

33. (Previously Presented) The base station in a CDMA cellular as set forth in claim 32, wherein

said base station sets a priority to said second code according to said transmission quality required amount and sets a priority of said combined code to be higher as said second code attains a higher priority.

34. (Previously Presented) The base station in a CDMA cellular as set forth in claim 32, wherein

said base station sets a priority to said second code according to said transmission quality required amount and sets a priority of said combined code to be higher as said second code attains a higher priority, and

provides an axis of a transmission quality required amount representing said transmission quality required amount and divides the axis of a transmission quality required amount by a plurality of threshold values to set a transmission quality required amount within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said second code.

35. (Previously Presented) The base station in a CDMA cellular as set forth in claim 32, wherein

said base station sets a priority to said first code according to said transmission quality required amount and sets a priority of each combined code in a group of said combined codes including the same second code to be higher as said first code attains a higher priority.

36. (Previously Presented) The base station in a CDMA cellular as set forth in claim 32, wherein

said base station sets a priority to said first code according to said transmission quality required amount and sets a priority of each combined code in a group of said combined codes including the same second code to be higher as said first code attains a higher priority, and

provides-an axis of a transmission quality required amount representing said transmission quality required amount and divides the axis of a transmission quality required amount by a plurality of threshold values to set a transmission quality required amount within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

37. (Original) The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of a channel quality value measured at said mobile station, and

checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code.

38. (Original) The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of a channel quality value measured at said mobile station,

checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code,

when said channel quality value is not less than a quality threshold value, sets a priority of a combined code to be higher that includes a second code whose said number of uses of each second code by said combined code is smaller, and

when said channel quality value is less than said quality threshold value, sets a priority of a combined code to be higher that includes a second code whose said number of uses of each second code by said combined code is larger.

39. (Original) The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of a channel quality value measured at said mobile station, checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code, and

sets a priority to said first code and sets a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority.

40. (New) A spread code allocation method in a CDMA cellular, comprising:
having a first code set including a plurality of first codes and a second code set including one or a plurality of second codes,

allocating the second code to said first code set and generating a pair of said first code and said second code allocated,

assigning a priority to each of said pair of said first code and said second code allocated for each transmission signal to be transmitted from a base station to a mobile station,

allocating said pair of said first code and said second code allocated to said transmission signal based on said priority,

spreading said transmission signal by the assigned pair of said first code and said second code allocated, and
transmitting said transmission signal spread to said mobile station.

41. (New) The spread code allocation method in a CDMA cellular as set forth in claim 40, further comprising:

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value, and

at said base station, determining a priority of said pair of said first code and said second code allocated based on said channel quality value informed.

42. (New) The spread code allocation method in a CDMA cellular as set forth in claim 41, further comprising:

setting a priority to said second code according to said channel quality value and setting a priority of said pair of said first code and said second code allocated to be higher as said second code attains a higher priority.

43. (New) The spread code allocation method in a CDMA cellular as set forth in claim 40, further comprising:

grasping a transmission quality required amount required by a mobile station receiving each said transmission signal, and

determining a priority of said pair of said first code and said second code allocated based on said transmission quality required amount.

44. (New) The spread code allocation method in a CDMA cellular as set forth in claim 43, further comprising:

setting a priority to said second code according to said transmission quality required amount, and

setting a priority of said pair of said first code and said second code allocated to be higher as said second code attains a higher priority.

45. (New) A CDMA cellular base station comprising:
a first code set including a plurality of first codes and a second code set including one or a plurality of second codes,
said base station
allocates the second code to said first code set and generating a pair of said first code and said second code allocated,
assigns a priority to each of said pair of said first code and said second code allocated for each transmission signal to be transmitted from a base station to a mobile station,
allocates said pair of said first code and said second code allocated to said transmission signal based on said priority,
spreads said transmission signal by the assigned pair of said first code and said second code allocated, and
transmits said transmission signal spread to said mobile station.
46. (New) The CDMA cellular base station as set forth in claim 45, wherein said base station is informed of channel quality values measured at a plurality of said mobile stations, and
determines a priority of said pair of said first code and said second code allocated based on said channel quality values informed.
47. (New) The CDMA cellular base station as set forth in claim 46, wherein said base station sets a priority to said second code according to said channel quality value, and
sets a priority of said pair of said first code and said second code allocated to be higher as said second code attains a higher priority.
48. (New) The CDMA cellular base station as set forth in claim 45, wherein

said base station grasps a transmission quality required amount required by a mobile station receiving each said transmission signal, and determines a priority of said pair of said first code and said second code allocated based on said transmission quality required amount.

49. (New) The CDMA cellular base station as set forth in claim 48, wherein said base station sets a priority to said second code according to said transmission quality required amount, and sets a priority of said pair of said first code and said second code allocated to be higher as said second code attains a higher priority.